UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8, MONTANA OFFICE
FEDERAL BUILDING, 10 West 15th St, Suite 3200
HELENA, MONTANA 59626

Ref: 8MO

May 2, 2012

Kootenai National Forest
Forest Plan Revision
31374 US Highway 2 West
Libby, Montana 59923

Re: CEQ 20110441; EPA Comments on the Kootenai National Forest Draft Land Management Plan (LMP) and DEIS

Dear Kootenai Forest Plan Revision Team:

The Environmental Protection Agency (EPA) Region VIII Montana Office has reviewed the Kootenai National Forest's (KNF) Draft Land Management Plan (LMP) and associated Draft Environmental Impact Statement (DEIS) in accordance with EPA's responsibilities under Section 102(2)(C) of the National Environmental Policy Act (NEPA), 42 U.S.C. Section 4321 *et.seq.,* and Section 309 of the Clean Air Act, 42 U.S.C., Section 7609. Section 309 of the Clean Air Act directs EPA to review and comment in writing on the environmental impacts of any major Federal agency action. EPA's comments include a rating of both the environmental impact of the proposed action and the adequacy of the NEPA document.

The EPA appreciates the KNF's efforts in considering and evaluating a great amount of information and input during preparation of the draft LMP/EIS, which proposes Goals, Desired Conditions, Objectives, Standards and Guidelines for the various revision topics, and allocates land to designated Management Areas on 2.2 million acres of national forest land in northwest Montana to guide Forest management for the next 10 to 15 years. We recognize that there are many challenges involved in management of national forests including; the complexities associated with the seven primary LMP revision topics (i.e., Access and Recreation, Vegetation, Timber Production, Fire, Terrestrial Wildlife, Watershed and Aquatic Species, and Recommended Wilderness); multiple statutory and regulatory requirements; and mixed land ownership patterns. In addition we acknowledge the KNF's efforts to involve the public in land management decisions via numerous public and workgroup meetings, open houses, and field trips.

The EPA commented on the KNF's prior draft LMP prepared in 2006 under the Forest Service's earlier 2005 Forest Planning Rule, however, that rule was enjoined in a 2008 Court decision which resulted in preparation of this latest draft LMP under the 1982 Forest Planning Rule. In our comments on the 2006 draft LMP we stated that the draft LMP Objectives (i.e., measurable and time-specific projections of Plan outcomes) did not appear to have a clear connection to attainment of the Desired Conditions for the resources. Frankly we have a similar comment in regard to the current draft LMP. Many worthwhile

Goals and detailed and specific Desired Conditions are included in the draft LMP to promote protection and/or improvement in environmental and resource conditions for the various resources and revision topics. However, often the Objectives, Standards and Guidelines for achieving the Desired Conditions include a significantly lesser level of detail and limited requirements and commitments for resource protection. This causes concern since the LMP states that the Objectives, Standards and Guidelines provide the measurable planned results, limitations or requirements, and operational practices and procedures to be applied to future projects and activities; whereas the Desired Conditions are stated to only guide management of the land and resources, and are not commitments or final decisions for projects and activities, and may only be achievable over a long time period.

The more meaningful direction and commitments for resource and environmental protection for future projects and activities, therefore, appear to be in the Objectives, Standards and Guidelines. We are concerned that this direction may provide less resource and environmental protection than needed to attain many of the Desired Conditions within a reasonable time frame. For example the proposed Watershed and Aquatics Objectives, Standards and Guidelines are worded more generally, lacking the detail and specificity and degree of protection for aquatic resources found in the Desired Conditions. Only one Standard for watersheds and water quality, FW-STD-WTR-01, is proposed, and it is not clear if this lone Standard and two Guidelines (FW-GDL-WTR-01; FW-GDL-WTR-02) will be adequate to attain all the Desired Conditions for watersheds and water quality (e.g., FW-DC-WTR-01 through FW-DC-WTR-05).

There are no Aquatic Habitat or Aquatic Species Standards and only minimal Guidelines. One of only two Aquatic Species Guidelines, FW-GDL-AQS-01, allows activities to disturb native salmonids and deliver sediment to their habitats with the only limitation being the time period for sediment delivery to the streams. It is not clear to us if these Guidelines will be adequate to attain Desired Conditions (FW-DC-AQS-01) that state support for *"well-distributed self-sustaining populations of native and desired non-native aquatic species (including amphibians, invertebrates, plants and other aquatic-associated species)*," and provision of "*stronghold populations of native fish, especially bull trout, westslope cutthroat trout and interior redband trout that thrive and expand."*

It would appear to us that the LMP elements that provide the measureable results and limitations, requirements and operational practices/procedures for projects and activities should promote more direct and more timely attainment of watershed, water quality, aquatic habitat and aquatic species Desired Conditions. We have been advised by KNF staff that all management direction for protection of Forest aquatic resources and to promote achievement of Desired Conditions are not identified and included in the draft LMP, and that additional direction for aquatic resource protection is available outside the LMP in other law, regulation, directives, and/or policy documents. We believe it would improve public understanding if management direction outside the LMP that would fill the apparent gaps in the draft Objectives, Standards and Guidelines were at least briefly identified and/or cited or summarized.

We have also been advised that the draft Objectives (i.e., measurable activities/outcomes expected to result from implementing the Plan) are based on current budget levels. We recognize that budget limitations are a reality facing all agencies, however, it would be of interest to better understand the

extent to which limited budgets influence the projected measureable results and outcomes and attainment of Desired Conditions. The DEIS includes analysis using current budget levels and unconstrained budget levels. It would be of interest to better understand how unconstrained budget levels might influence projected results and outcomes and attainment of Desired Conditions for Watersheds, Water Quality, Aquatic Habitat and Species

We have provided additional comments and included recommendations for revised and/or additional Standards and Guidelines to promote more timely attainment of Desired Conditions for consideration by the KNF in our more detailed comments (see enclosed). We are pleased that management direction from the Inland Native Fish Strategy (INFISH) is being retained in all action alternatives, and that Riparian Conservation Areas (RCAs) which buffer streams from management activities will continue to be used (FW-STD-RIP-03).

The DEIS identifies Alternative B as the preferred alternative to move the Forest towards desired future conditions while contributing to ecological, social, and economic sustainability. Alternative B would manage approximately five percent of the Forest as recommended wilderness (MA1b), 21.6% percent as backcountry (MA5), and 63.3% as general forest (MA6), and designate 75% of the Forest for wheeled motorized uses. Thirty-six percent of the Forest would be suitable for timber production, and it is predicted that 47.5 million board feet (MMBF) timber volume would be sold annually, in comparison to the current predicted annual timber harvest level of 50.3 MMBF.

While we do not object to the preferred alternative, we consider Alternative C to be the environmentally preferred alternative, since the DEIS states that improvements to water quality, soil productivity, riparian and aquatic habitats are more likely to occur under Alternative C, although the DEIS includes inconsistent information in this regard. We discuss these inconsistencies in our more detailed comments (enclosed), and recommend that the final EIS address inconsistencies and clarify overall watershed and aquatic species effects of the programmatic alternatives.

We recognize that land management decisions involve environmental and resource management trade-offs (e.g., trade-offs associated with timber production, vegetation treatments, motorized access and impacts to water quality and fisheries, forest health, fire risk and fuels, air quality, old growth, wildlife, and other resource impacts). We generally consider it appropriate to attempt to balance environmental and resource management trade-offs to address purpose and need and the significant issues while minimizing adverse environmental impacts in an effort to optimize the many trade-offs.

Finally we want to state that we consider monitoring and adaptive management to be an integral part of land management. We recommend that the LMP and monitoring guide discuss how future budget decisions may affect monitoring and evaluation. We support linking the approval of projects tiered to the LMP to availability of funding for conducting needed monitoring and evaluation. We encourage KNF to make a strong, explicit commitment to funding monitoring activities, especially watershed/water quality monitoring, such as that in the Forest Service Pacific Northwest Region's Forest Monitoring and Evaluation Guide in which the Regional Forester stated,

"All programs and projects should contain appropriate levels of monitoring funds in their costs - or they should not be undertaken." (USDA FS 1993).

The EPA's more detailed comments, concerns and/or recommendations and further discussion regarding the analysis, documentation, or potential environmental impacts of the Kootenai National Forest Draft LMP and DEIS are included in the enclosure with this letter. Based on the procedures EPA uses to evaluate the adequacy of the information and the potential environmental impacts of the proposed action and alternatives in an EIS, the DEIS has been rated as Category EC-2. A copy of EPA's rating criteria is attached. Our environmental concerns are associated with the lesser degree of environmental protection provided by many of the Objectives, Standards and Guidelines that provide the more meaningful direction and commitments for resource and environmental protection for future Forest projects and activities. There are opportunities to reduce environmental effects and improve mitigation measures with improved Objectives, Standards and Guidelines.

The EPA appreciates the opportunity to review and comment on the draft LMP and DEIS. If we may provide further explanation of our comments please contact Mr. Steve Potts of my staff in Missoula at 406-329-3313 or in Helena at 406-457-5022 or via e-mail at potts.stephen@epa.gov. Thank you for your consideration.

Sincerely,

Julie A. DalSoglio
Director
Montana Office

Enclosures
cc: Suzanne Bohan/Judy Roos, EPA, 8EPR-N, Denver
Dean Yashan/Robert Ray/Mark Kelley, MDEQ, Helena

U.S. Environmental Protection Agency Rating System for Draft Environmental Impact Statements
Definitions and Follow-Up Action*

Environmental Impact of the Action

LO - - Lack of Objections: The Environmental Protection Agency (EPA) review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

EC - - Environmental Concerns: The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce these impacts.

EO - - Environmental Objections: The EPA review has identified significant environmental impacts that should be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no-action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

EU - - Environmentally Unsatisfactory: The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the Council on Environmental Quality (CEQ).

Adequacy of the Impact Statement

Category 1 - - Adequate: EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis of data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

Category 2 - - Insufficient Information: The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses or discussion should be included in the final EIS.

Category 3 - - Inadequate: EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the National Environmental Policy Act and or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

* From EPA Manual 1640 Policy and Procedures for the Review of Federal Actions Impacting the Environment. February, 1987.

EPA Comments on the Kootenai National Forest Draft Land Management Plan (LMP) and Draft Environmental Impact Statement (DEIS)

Brief Project Overview:

The Kootenai National Forest analyzed four alternatives for programmatic management of 2.2 million acres of public land in northwest Montana for the next 10 to 15 years. The Draft LMP includes proposed Goals, Desired Conditions, Objectives, Standards and Guidelines for the various revision topics ((i.e., Access and Recreation, Vegetation, Timber Production, Fire, Terrestrial Wildlife, Watershed and Aquatic Species, and Recommended Wilderness), and management area allocations to guide future Forest management.

Alternative A – The No Action Alternative is the 1987 Forest Plan as amended to date. Alternative A would manage approximately 3.4% of the Forest as recommended wilderness (MA1b-78,500 acres), 15.5% as backcountry (MA5), and 76% designated for wheeled motorized uses. Thirty-three percent of the Forest would be suitable for timber production, and 50.3 MMBF timber volume is predicted to be sold (ASQ is 76 MMBF).

Alternative B - The Proposed Action is emphasizes moving towards desired future conditions and contributing to ecological, social, and economic sustainability. Alternative B would manage approximately 5% of the Forest as recommended wilderness (MA1b- 112,800 acres), 21.6% percent as backcountry (MA5), and 63.3% as general forest (MA6), and 75% designated for wheeled motorized uses. Thirty-six percent of the Forest would be suitable for timber production, and 47.5 MMBF timber volume is predicted to be sold (ASQ is 70.2 MMBF). Alternative B is the preferred alternative.

Alternative C emphasizes wilderness values and protection of backcountry while moving towards desired conditions. It increases emphasis on natural disturbance processes (such as unplanned wildfire ignitions for multiple objectives) and prescribed burning. Mechanical treatments (e.g., timber harvest, stream improvements) also occur in order to move towards watershed and vegetation desired conditions. Alternative C would manage approximately 9.7% of the Forest as recommended wilderness (MA1b-342,600 acres), 21.6% percent as backcountry (MA5-477,900 acres), and 58.7% as general forest (MA6), and 68% designated for wheeled motorized uses. Thirty-four percent of the Forest would be suitable for timber production, and 40.2 MMBF timber volume is predicted to be sold (ASQ is 68.6 MMBF).

Alternative D emphasizes achieving desired condition through mechanical means. Timber production is emphasized while moving towards vegetation desired conditions. This alternative has the most acres available for timber production and motorized access. Alternative D would manage 1.6% of the Forest as recommended wilderness (MA1b), 12.6% percent as backcountry (MA5), and 75.5% as general forest (MA6), and 82% designated for wheeled motorized uses. Thirty-eight percent of the Forest would be suitable for timber production, and 50.4 MMBF timber volume is predicted to be sold (ASQ is 86.3 MMBF).

Comments:

Watershed, Soils, Riparian and Aquatic Resources

1. We appreciate the narrative discussions describing alternatives in the DEIS, as well as the figures and Table 5 showing management area allocations for each alternative, and Table 6 comparing alternatives by key resource indicators. Although we found it surprising that Table 6 (DEIS page 38) predicts that Alternative D would result in the most rapid improvement in overall trend in watershed condition and native aquatic species status, while Alternative C would have the least improvement in watershed condition trend and native aquatic species status improvement.

   This result seemed counterintuitive to us since Alternative D allocates the most acreage to timber production, provides the most motorized access and roaded areas, greatest opportunities for new road construction, and least recommended wilderness and primitive areas; while Alternative C allocates the least acreage to timber production, and provides the most motorized access and roaded areas and only allows for construction of temporary roads under limited circumstances, and has the most recommended wilderness and primitive areas (page 177). The Alternative D description in Chapter 2 states that "improvements to water quality, soil productivity, riparian, and aquatic habitat improvements may be less in this alternative because of increased active management and reduced opportunities for passive restoration under MA1 and 5" (page 26). The DEIS also states that, "more effects to watersheds, soils, riparian, and aquatic resources are generally expected with more intensive timber harvest (Alternative D) and less effects in Alternative C" (page 178). These statements seem inconsistent with the predictions of more rapid watershed improvement with Alternative D in Table 6. Although another section of the DEIS (page 175) supports the Table 6 prediction, indicating Alternative D may result in greater watershed, soil, riparian, and aquatic habitats improvements than with Alternatives A, B, or C based on the greater allocation of land area to MA6 (general forest), which increases the possibility of more land management activities and more potential active restoration opportunities.

   We contacted KNF staff and were advised that the determination that Alternative D would result in the most rapid improvement in watershed conditions was based on the ability to carry out more active restoration with Alternative D. Although we were also advised that there wasn't much difference in watershed restoration opportunities between alternatives, and there would be watershed improvements with all action alternatives. KNF staff also noted that watershed restoration activities have been ongoing on the Forest (e.g., implementing INFISH requirements, road decommissioning, stream crossing upgrades, etc.).

   While we recognize that there are watershed situations where active management may correct degraded watershed conditions on a more timely basis then waiting for nature to correct the degraded condition (i.e., as long as the appropriate active restoration actions are taken), generally higher levels road construction and increased motorized uses and more timber production result in greater potential for adverse effects to watershed conditions and water quality. It is still not clear if the beneficial effects from carrying out more watershed restoration activities with Alternative D

would outweigh potential adverse effects from additional road construction, motorized access, timber production and other resource development.

To avoid confusion and improve public understanding we recommend that the inconsistent statements regarding overall watershed and aquatic species effects of the programmatic management alternatives be explained or clarified in the FEIS. It may be helpful to present trade-offs between conduct of more active restoration vs. reduction of potential adverse effects associated with more roads, motorized travel, additional timber harvests, etc., among programmatic alternatives.

2. EPA considers the protection, improvement, and restoration of riparian and wetlands areas to be a high priority. Wetlands and riparian areas increase landscape and species diversity, and are critical to the protection of designated water uses. Executive Order 11990 requires that all Federal Agencies protect wetlands. We are pleased that it is stated that 91percent of the 385,000 acres of riparian areas on the KNF are "intact" (which we assume means properly functioning) (DEIS page 150).

   We are also pleased that management direction from the Inland Native Fish Strategy (INFISH) is being retained in all action alternatives (page 171), and that Riparian Conservation Areas (RCAs) which buffer streams from management activities will continue to be used. We support the proposal in Alternatives B, C, and D to include more specific direction for future management and restoration of RCAs and maintain or improve intact and functioning RCAs (FW-STD-RIP-01); restore riparian areas (FW-STD-RIP-02); and require placement of mine facilities outside RCAs (FW-STD-RIP-04, page 172). The proposed Soils Guidelines also include good direction for reducing impacts to soils (e.g., FW-GDL-SOIL-03 which encourages retention of woody debris on the ground to promote nutrient cycling and maintenance of soil productivity).

3. We support the designation of watersheds with excellent habitat and strong native fish populations and/or high restoration potential as "priority" watersheds (i.e., highest priority for restoration, monitoring and watershed analysis, page 151). It is estimated that there are 21 conservation subwatersheds and 45 restoration subwatersheds on the Forest (i.e., conservation watersheds are where protection of stronghold populations of native salmonids and restoration efforts are emphasized, DEIS page 151). The draft LMP and DEIS discusses "Conservation," "Priority," and "Restoration" watersheds, which are defined in the Glossary, and described further in DEIS Appendix E, Aquatics: Analyses and Methodology.

   DEIS Appendix E disaggregates Restoration Watersheds into active and passive Restoration Watersheds. Active Restoration Watersheds are subwatersheds with small native fish populations and a watershed condition rating of "moderate," whereas passive Restoration Watersheds are subwatersheds with small native fish populations and a watershed condition rating of "high" (Appendix E, page 158). The definition of watershed condition in the glossary states that watersheds with "moderate" ratings may not support beneficial uses, whereas watersheds with "high" ratings generally do not support beneficial uses (LMP page 119). This is helpful information, but the extent to which Montana Clean Water Act Section 303(d) listings of waterbodies with beneficial use impairments (found at http://cwaic.mt.gov/) relate to selection or identification of the active and

passive Restoration Watersheds is not clear. We recommend that the final LMP/EIS discuss how State 303(d) water quality impairment listings factor into selection of Priority Watersheds and passive and active Restoration Watersheds

4. We support the Desired Condition for cooperation and coordination with state and federal agencies, tribes and other groups during watershed restoration (FW-DC-AQS-03 and 04, page 173). We agree that successful watershed scale restoration requires close coordination between multiple resource programs, watershed councils, adjacent landowners, and other stakeholders and partners. However, we did not see a follow-up Watersheds Standard or Guideline regarding interagency cooperation and coordination during watershed restoration. We have suggested an addition to Watersheds and Water Quality Guideline FW-GDL-WTR-01 for this (see comment #7 below).

5. We are pleased that the Desired Conditions for Watershed, Soils, Riparian and Aquatic Resources in the draft LMP includes detailed and specific direction for protection of watersheds, water quality, riparian areas, and aquatic resources. For example FW-DC-WTR-02 specifies that all management activities will emphasize protection of water quality so that State water quality standards are met; water flows support beneficial uses; water quality meet the ecological needs of native and desirable non-native aquatic species; and the physical integrity of fish habitats are maintained. FW-DC-RIP-03 and FW-DC-AQH-05 specify that stream channels provide the structure for desired stream habitat features such as pool frequency, residual pool depth, large woody material, bank stability, lower bank angle, and width-to-depth ratios, and provide overwintering, spawning, cover, rearing and feeding habitat for aquatic species. We fully support such detail and specificity for protection of water quality and aquatic habitat, and meeting aquatic ecological needs in the Desired Conditions.

   In comparison to the Desired Conditions the proposed Watershed and Aquatic Objectives, Standards and Guidelines in the draft LMP are brief and worded more generally, lacking the detail and specificity and degree of protection for aquatic resources. This is of concern since the LMP states that the Objectives, Standards and Guidelines provide the measurable planned results, limitations or requirements, and the operational practices and procedures to be applied to projects and activities (LMP page 2). The Desired Conditions are stated to only guide management of the land and resources of the plan area and are not commitments or final decisions for projects and activities, and may only be achievable over a long time period.

   We did not see the timeframe within which the proposed Objectives, Standards and Guidelines are expected to result in attainment of the Desired Conditions discussed in the draft LMP. We are concerned that the draft Objectives, Standards and Guidelines for Watersheds, Water Quality and Aquatic Habitat and Species may not provide adequate planned results, commitments, limitations or requirements, and practices/procedures to attain the Desired Conditions within a reasonable time frame.

   For example, the lone Standard for watersheds and water quality, FW-STD-WTR-01, simply states that ground-disturbing activities in source water areas shall prevent risks and threats to public uses of the water, and allows limited short-term effects from activities in source water areas when they

support long-term benefits to aquatic resources. While we don't disagree with this Standard, it appears to fall short of providing enough limitations or requirements to attain the Desired Conditions for watersheds and water quality (e.g., promoting full protection of water quality and support of beneficial uses, and meeting the ecological needs of native and desirable non-native aquatic species and maintain the physical integrity of their habitats, and other conditions specified in FW-DC-WTR-01 through FW-DC-WTR-05).

The two draft Watersheds and Water Quality Guidelines only address avoidance of further water quality degradation for impaired watersheds where Total Maximum Daily Loads (TMDLs) are not are not available, and address hydrologic stability when decommissioning roads. We suggest that additional situations and activities be addressed with Watersheds and Water Quality Standards and Guidelines to provide clearer and more comprehensive direction for watersheds and water quality protection.

There are no Standards and only two Guidelines for Aquatic Habitat or Aquatic Species. Aquatic Species Guideline, FW-GDL-AQS-01, allows activities to disturb native salmonids and deliver sediment to their sediment to their habitats with only limitation being the time period for sediment delivery to streams. It is not clear how these few limitations or requirements and operational practices and procedures will promote attaining the Aquatic Habitat and Aquatic Species Desired Conditions for, *"...well-distributed self-sustaining populations of native and desired non-native aquatic species (fish, amphibians, invertebrates, plants and other aquatic-associated species),"* and *"...stronghold populations of native fish, especially bull trout, westslope cutthroat trout and interior redband trout continue to thrive and expand"* (FW-DC-AQS-01).

The measurable result stated in the draft Objectives for Watersheds and Water Quality FW-OBJ-WTR-01 and FW-OBJ-WTR-02 simply requires that 15 percent of watersheds rated as "Moderate" or "High" trend toward a better watershed condition; and improving aquatic ecosystem function on only 100 to 500 acres of "Moderate" or "High" watersheds. Aquatic Habitat Objective FW-OBJ-AQH-01 requires that 15 to 50 miles of fisheries habitat be enhanced or restored, and FW-OBJ-AQS-01 only requires 5 percent of "Moderate" or "High" watersheds with sensitive and T&E species to be improved over the life of the Plan. These appear to be minimal watershed improvement results to expect in 10 to 15 years of Forest management.

Would it be possible to improve upon the planned results in such Objectives? For example, can the KNF improve conditions on more than 15 percent of watersheds rated as "Moderate" or "High;" improve aquatic ecosystem functioning on more than 100 to 500 acres; enhance more than 15 to 50 miles of fisheries habitat; and improve more than 5 percent of watersheds rated as "Moderate" or "High with sensitive and T&E species in 10 to 15 years of Forest management?

If budget limitations constrain projected outcomes and results, it would be of interest to better understand how unconstrained budget levels might influence projected results and outcomes and attainment of Desired Conditions for Watersheds, Water Quality, Aquatic Habitat and Species. We

recommend that the final documents discuss the extent to which limited budgets influence the projected measureable results and outcomes and attainment of these Desired Conditions.

6. We discussed draft Aquatic Habitat Objective, FW-OBJ-AQH-02, with the Montana Dept. of Environmental Quality's (MDEQ) Biological Water Quality Standards Specialist and he indicated that MDEQ was in the process of introducing a newer version of the Montana macroinvertebrate assessment model (i.e., model for measuring the deviation of a given macroinvertebrate population as compared to a macroinvertebrate population in a reference quality stream with Observed/Expected [O/E ratios]). MDEQ set the threshold for the current O/E model at 0.8, but the new model will have a different threshold. The new MDEQ model differs from the previous version in two ways: First, it was built using macroinvertebrate data collected from mountainous streams; Second, they built the model only using samples collected following the reach wide Environmental Monitoring and Assessment Protocols (EMAP-RW) developed by EPA. MDEQ will post information about the new model and how they derived the new threshold in March of 2012 on their website (http://www.deq.mt.gov/wqinfo/standards/default.mcpx). He also suggested that the KNF not refer to the O/E model as "RIVPACS," since that name was given to the original version of the model designed for Great Britain. He said a confused British scientist asked him at a meeting why Montana was using the British model to evaluate macroinvertebrate populations in Montana streams? He suggested using either "KNF O/E model," or "KNF RIVPACS-style model" to refer to the KNF version. We recommend that the KNF discuss macroinvertebrate assessment methodology for incorporation into the KNF Aquatic Habitat Objective with Dave Feldman of MDEQ in Helena at 406-444-6764."

   Some other comments received on draft KNF Objective, FW-OBJ-AQH-02, from other MDEQ aquatics staff are:

   a) In general, the wording of the KNF's stated objective appears to incorporate substantial leeway for localized, severe degradation of macroinvertebrate communities to occur.
   b) The objective should specify that it is addressing aquatic macroinvertebrates rather than macroinvertebrates in general.
   c) The statement "over the life of the plan" implies an averaging approach to meeting biological objectives such that that it is acceptable to have periods that do not meet biological criteria as long as there are one or more periods when biological objectives are exceeded during the life of the plan. This implies a potentially false assumption that macroinvertebrate communities can and will readily recover from anthropogenic activities that induce significant biological degradation during the life of the plan.
   d) A "representative assemblage" does not necessarily imply an assemblage that meets biological criteria (diverse and "healthy") or that is indicative of water quality standards attainment. Representative is a term biologists use in the context of sampling procedures, e.g. trying to obtain a representative sample....not in the context of trying to maintain biological diversity.
   e) It is suggested that the term "community" be used rather than "assemblage" because the latter tends to be used more to describe the taxa present at a site, not across a broad area. Furthermore my view is that the term "assemblage" is typically used in the context of describing the

properties of a sample from a community....e.g. the sample was characterized by a sediment intolerant "assemblage" of taxa. It would sound strange to describe the human population in Libby as the "Libby assemblage" instead of the Libby community.

f) The language used implies that the overall objective is to have an average score across a planning area that equals or exceeds 0.78. Under this condition, the objective would be met by having one site with a score of 1.0 and another of 0.56. However, the score of 0.56 indicates that the assemblage and therefore ecological conditions at that site have been severely degraded. MDEQ applies the scores at the site scale and does not average scores across multiple sites. Assigning a threshold of 0.80 already accounts for variability and model error, so averaging scores across an area or across sites is neither appropriate nor necessary.

g) According to Chuck Hawkins at Utah State University who has been developing O/E models in North America, the bio-criteria threshold for the score can be thought of in terms of how much macroinvertebrate diversity one is willing to lose. In this regard, a goal for the score to be 0.78 or higher means that one is willing to lose 22% of the species. MT DEQ uses a threshold of 0.80; with that said I would recommend they use a threshold of 0.80. As mentioned before, if averaged across the entire planning area, this implies that the forest is willing to lose up to 44% of the taxa at some sites as long as 100% is retained at other sites. This objective would be easily met if, for example, one averages the score from a pristine site (e.g. in an unmanaged watershed) with a site score for a location that has been severely degraded by land use practices (i.e. this could be achieved by sampling upstream and downstream of a major anthropogenic watershed disturbance). Instead, the O/E score should be evaluated at the site and stream scale and the objective should incorporate such specificity.

We suggest that the KNF consider **revising FW-OBJ-AQH-02** as follows: *"Over the life of the plan the assemblage of macroinvertebrates present across the planning area as measured by the KNF River Invertebrate Prediction and Classification System (RIVPACS) analysis Observed/Effect (O/E) Model maintains a score of between 0.80 and 1.20 scores at all sites monitored on individual water bodies within the planning area."*(This will assure that the structural and functional diversity of aquatic macroinvertebrate communities of all streams within a planning area are not substantially different than would be expected at sites that remain non-impaired by anthropogenic pollution and/or pollutants.)

7. We recommend strengthening the Watershed/Aquatics Resources Standards and Guidelines to improve the Standards and Guidelines to promote more timely attainment of the Desired Conditions. For example, we recommend that the KNF consider some revised and/or additional Watershed/Resources Standards and Guidelines as follows:

Standards

Watersheds and Water Quality

Revise FW-STD-WTR-01 as follows: *Ground-disturbing activities in source water areas (designated special or public water supply watersheds) shall prevent risks and threats to public uses of the water, and be consistent with State source water protection program requirements. Limited short-term effects from activities in source water areas may be acceptable when they support long-*

term benefits to the RCAs and aquatic resources. [Note: See attachment entitled, "Incorporating Source Water Protection into Federal Land Management Planning Process."]

Aquatic Habitat

Add FW-STD-AQH-01 as follows: *Ground-disturbing activities in Conservation and Restoration Watersheds shall prevent protect aquatic habitat for westslope cutthroat trout, bull trout or interior redband trout. Short term negative effects are acceptable if outweighed by long term benefits.*

Guidelines

Watersheds and Water Quality

Revise FW-GDL-WTR-01 as follows: At the end of existing Guideline add*: The KNF shall work cooperatively with the State, EPA, Tribes, and local watershed groups to support development of TMDLs and water quality restoration plans, and assess and validate listings of impaired waters and prioritize impaired waters on the KNF for restoration.* [Note: There is a Desired Condition for cooperation and coordination with state and federal agencies and other groups during watershed restoration (FW-DC-AQS-03), but no follow-up Objective, Standard or Guideline to assure that such cooperation/coordination occurs.]

Add FW-GDL-WTR-03 as follows: *Ground-disturbing activities in watersheds without water quality impaired waterbodies shall be planned, designed and implemented to protect and maintain project area watershed conditions and water quality to maintain continued support of beneficial uses.*

Add FW-GDL-WTR-04 as follows: *Ground-disturbing activities in watersheds with water quality impaired waterbodies where there are approved TMDLs shall be planned, designed and implemented to be consistent with TMDLs and water quality restoration plans, and thereby promote improved watershed conditions and water quality and restoration of full support of beneficial uses. It is recognized that all water quality impaired waters (i.e., listed by the State under Section 5 of the Integrated 303(d)/305(b) Report) may not be fully restored during the planning period. Do not cause further degradation of water quality in 303(d)-listed watersheds and waterbodies, unless such degradation is short-term and necessary to promote long-term water quality improvement and attainment of support for beneficial uses.*

[Note: Currently a Guideline is only proposed to address the situation of a ground disturbing activity in the watershed of a water quality impaired waterbody where there is no approved TMDL. We suggest the above Guidelines to also address situations where TMDLs are available, and where activities occur in watersheds without impaired waters to assure water quality is protected and beneficial uses continue to be supported.]

Add FW-GDL-WTR-05 as follows: *The KNF shall consider State listings of 303(d) water quality impaired waters along with fisheries needs as watershed and water quality restoration needs and monitoring activities are prioritized, and restoration activities planned and conducted in Restoration Watersheds.*

Add FW-GDL-RIP-07 as follows: *Wetlands should be flagged and marked on the ground and on maps to facilitate avoidance of disturbance to wetlands.*

Add FW-GDL-RIP-08 as follows: *Consider including fisheries biologist and/or hydrologist when laying out treatment units and marking trees within riparian areas along streams to ensure adequate riparian and stream protection.*

Add FW-GDL-RIP-09 as follows: *Prohibit storage of fuels and other toxicants within RCAs. Prohibit refueling within RCAs unless there are no other alternatives. Refueling sites within an RCA must be approved by the Forest Service and have an approved spill containment plan.*
Add FW-GDL-AQH-01 as follows: *Plan, design and implement new projects and activities wherever possible to maintain or restore structure, composition, and function of habitat for fisheries and other aquatic species, including overwintering, spawning, cover, rearing, and feeding habitat.*
Add FW-GDL-AQH-02 as follows: *Require instream flows and habitat conditions for hydroelectric and other surface water development proposals to maintain or restore riparian resources, favorable channel conditions, fish passage, reproduction, and growth. Coordination will occur with the USFWS, MDFWP, and other federal, state, and local agencies. During re-licensing of hydroelectric projects, provide written and timely license conditions to the Federal Energy Regulatory Commission (FERC), that require fish passage and flows and habitat conditions that maintain/restore riparian resources and channel integrity. Coordinate re-licensing projects with the appropriate state agencies.*
Add FW-GDL-AQS-03 as follows: *The KNF shall evaluate the risks of aquatic nuisance /exotic species introduction as part of project analysis.*
Add FW-GDL-AQS-04 as follows: *Provide and maintain fish passage at new, replacement, and reconstructed road crossings of existing and potential fish-bearing streams, unless barriers are determined beneficial for native fish and/or sensitive aquatic species conservation.*

Access and Recreation

8. The DEIS acknowledges that roads can have some of the greatest effects to watersheds and aquatic biota, with potential to change the runoff characteristics of watersheds, increase erosion and sediment delivery to streams, and alter channel morphology, and change habitats for fish and amphibians (DEIS page 136). Roads also often fragment wildlife habitat, and may be a cause of death for migrating amphibians. Public recreational demand and access has increased significantly in recent years, and motorized uses and roads in many cases have caused increased damage to aquatic and terrestrial resources.

   There are 2,000 miles of road located in riparian areas on the KNF, which amounts to approximately 14 percent of all road miles, with an average road density of 2.9 mi/mi^2, and 12,000 road stream crossings and an average of 2.4 stream crossings/mi^2 (DEIS page 150). Roads are often a primary source of human-caused sediment increases, and sediment yields are generally higher from roads than from trails, and from motorized trails than from non-motorized trails. The condition of forest road networks, limited funding to properly maintain roads, and environmental effects of motorized travel are an important concern in regard to land management. It is known that prolonged under-funding of road maintenance on National Forests has resulted in degraded road conditions, and that there is a significant backlog of road maintenance needs on National Forests (Source: "Rightsizing" the Forest Service Road System Part 1: Road Trend Analysis, March 22, 2007). The DEIS acknowledges that even though road construction BMPs are designed to minimize the effects to watersheds, many miles of existing roads were not built to these standards or are no longer maintained. As a result, these roads either continue to affect watersheds through chronic erosion, or

are at risk for mass failure from crossings or locations on sensitive land types.

We are pleased that the DEIS states that construction of few new roads is anticipated and existing roads will be routinely improved, upgraded, or removed as they are evaluated during planning efforts for individual management activities (DEIS page 171). It is also stated that miles of road construction will be greatly offset through miles of road decommissioning, and that watershed conditions are not expected to decline from the current level of management in the Plan and are expected to improve (page 171).

We are also pleased that Desired Conditions for Access and Recreation, particularly FW-DC-AR-07, indicates that the transportation system is efficiently maintained, environmentally compatible, with minimal impacts on resources including threatened and endangered species, sensitive species, heritage and cultural sites, watersheds, and aquatic species (LMP page 10). We support Access and Recreation Desired Conditions promoting minimization of road impacts to streams and maintenance of roads. We appreciate such detailed and specific Desired Conditions indicating that the Forest transportation system is protective of other resources particularly aquatic resources that roads are known to impact as public and management access is provided.

However, as with our comments on the proposed Objectives, Standards and Guidelines for Watersheds/Aquatics, we find the proposed Access and Recreation Objectives, Standards and Guidelines often include lesser detail and resource protection commitments for the transportation system to meet the aquatic resource protection conditions in FW-DC-AR-07 within a reasonable timeframe. We recommend that the Access and Recreation Objectives, Standards and Guidelines provide for more direct and timely attainment of the transportation system Desired Conditions, particularly aquatic resource conditions identified in FW-DC-AR-07 (i.e., new roads do not encroach into streams and riparian areas; pose minimal risks to water quality and aquatic ecosystems; have adequate drainage avoiding sediment delivery to streams; stream crossings provide for passage of aquatic organisms; and unauthorized roads/trails are no longer created).

It is not clear to us if the current draft Objective for National Forest System Road Maintenance provides adequate levels of road maintenance to achieve Desired Conditions within a reasonable timeframe, most notably protection of water quality, aquatic habitat and fisheries. Are the outcomes or measurable results stated in draft Objective FW-OBJ-AR-03 likely to attain Desired Conditions for Watersheds, Water Quality, Aquatic Habitat and Aquatic Species within a reasonable timeframe? Is this all that can be accomplished to address road system maintenance needs within the 10 to 15 year planning period?

We encourage the Forest Service to provide adequate funding to carry out proper road/trail maintenance to avoid damages from the transportation system to other resources, and to and rehabilitate roads causing resource damages, especially user-created roads. Without adequate funding for road maintenance funding impacts to soil and water resources from roads are likely to continue.

9. We support decommissioning of roads which cannot be properly maintained resulting in resource damages when adequate maintenance is not carried out. We encourage prioritizing closure and/or decommissioning of roads near streams and roads with many stream crossings, since removal of such roads are more likely to improve water quality than closure/decommissioning of roads on upper slopes and ridges. Reductions in road density, especially road stream crossing density, has often been correlated with improved aquatic health, and lower road densities are also often associated with improved wildlife habitat, connectivity and security. In addition, there is often a relationship between higher road density and increased forest use and increased human caused fire occurrences. Reduction in road density, therefore, may also reduce risks of human caused fires, which could be important in an area with high fuels/fire risk and/or wildland/urban interface issues

We recommend strengthening the Access and Recreation Standards and Guidelines to promote a greater likelihood of attaining the aquatic resource protection conditions in FW-DC-AR-07 within a reasonable timeframe. We recommend that the KNF consider some revised and/or additional Access and Recreation Standards and Guidelines as follows:

Standards

No Access and Recreation Standards are proposed. We encourage KNF consideration of adding an Access and Recreation Standard related to adequate maintenance of roads and trails.

Add FW-STD-AR-01 as follows: *The transportation system shall be maintained with appropriate road/trail BMPs to minimize road/trail drainage and erosion problems, sediment transport to streams from roads/trails; stable road/trail stream crossings with properly sized culverts and/or bridges that pass desirable native fish at all life stages and promote attainment of desired conditions as road maintenance funding allows.*

Add FW-STD-AR-02 as follows: *Forest and District Motor Vehicle Use Maps (MVUMs) should be updated annually or biannually with a clear minimum roads process.*

Guidelines

Only one Access and Recreation Guideline is proposed, and it is for promoting scenic integrity. No Guidelines are proposed for avoiding or minimizing road effects on water quality and fisheries even though roads are often the major anthropogenic source of sediment adversely affecting hydrology, water quality, and fisheries on National Forests. Improperly designed, located and/or poorly maintained roads can modify natural drainage networks and accelerate erosional processes, resulting in increased stream sedimentation, degradation of aquatic habitats and altered channel morphology. Roads can also fragment wildlife habitat and reduce wildlife security, and promote spread of weeds. We believe it is important to have Guidelines for road planning, design, operation and maintenance that assure that new roads/trails are protective of watershed conditions, water quality, fisheries and wildlife (although these suggested Guidelines could also be considered as potential Watershed and Water Quality Guidelines).

Add FW-GDL-AR-02 as follows: *New roads and trails should be planned and designed to avoid encroachment into streams and riparian areas, and designed, operated and maintained to minimize impacts on water quality, fish and aquatic life, and hydrologic processes, and promote attainment of*

desired conditions. Measures to consider for reducing adverse effects of roads/trails on aquatic resources include:
-Minimize roads and landing locations in RCAs, and carry out watershed analysis to assure roads and landings in RCAs are protective of watersheds
-Avoid constructing roads near streams and riparian areas and on unstable landtypes or landslide or mass failure prone areas, and identify such areas for avoidance prior to road design and construction.
-Minimize and avoid sediment transport and delivery from roads to streams with appropriate techniques such as:
- stabilize cut and fill slopes
-outsloping road surfaces
-minimize or avoid disruption of natural hydrologic flow paths by roads, including diversion of streamflow and interception of surface and subsurface flow
-routing road drainage away from erosive areas or where they may discharge directly into streams
-providing adequate numbers of waterbars, rolling dips and ditch relief culverts to avoid drainage running on or along roads
-installing cross-drainage above stream crossings to prevent ditch sediments from entering streams where possible
-minimizing road use during spring thaw periods that causes rutting and channeling of snowmelt and runoff, and during wet periods that may erode road surfaces
- minimize road construction and reduce road density as much as possible to reduce potential adverse effects to watersheds
- consider road effects on stream structure and seasonal and spawning habitats
- allow for adequate large woody debris recruitment to streams and riparian buffers near streams
-Minimize the number of road stream crossings
-Stream crossings should simulate natural stream grade and substrate as much as possible in fish bearing streams (use bridges, arches and open bottom culverts wherever possible).
-Road stream crossings should be assessed to see if they adequately provide for fish passage, flood flows, and bedload and woody debris transport.
- use bridges or open bottom culverts that simulate stream grade and substrate and that provide adequate capacity for flood flows, bedload and woody debris where needed to minimize adverse fisheries effects of road stream crossings.
- properly size culverts to handle flood events, pass bedload and woody debris, and reduce potential for washout
- replace undersized culverts and adjust culverts which are not properly aligned or which present fish passage problems and/or serve as barriers to fish migration
-Construction of stream crossings should occur during periods of low stream flow (usually in late summer or early Fall) and preferably in the dry. Special care should be taken to avoid or minimize impacts to the stream channel and to riparian vegetation during construction. Stream banks disturbed during construction should be revegetated. Operation of equipment within the channels of creeks and rivers only occurs if absolutely necessary and with proper permits and authorizations (e.g., Clean Water Act 404 permits, Montana DEQ 318 authorizations and Montana DFW&P 124 authorizations).
- Close, stabilize or obliterate (decommission) roads not needed for future management or

recreation that cause resource damages
- Roads scheduled for decommissioning should be analyzed with site-specific analysis to determine decommissioning and/or closure methods (such as stabilization, revegetation, with natural drainage restored) that best protects aquatic and terrestrial resources. Culverts or other crossing structures should be left on closed or decommissioned roads, only when they can be maintained on a regular basis to minimize or prevent the risk of failure and associated resource damage.
- Road maintenance (e.g., blading) and handling of road waste material (e.g., slough, rocks) should only be conducted: 1) when the road surface becomes too rough for the designated vehicle use; 2) when the surface becomes a safety hazard; or 3) when it is needed to improve road drainage by reducing road surface erosion and sediment delivery from roads to area streams. Avoid blading of road surfaces, including soils and snow, into surface waters or into areas that could result in transport of sediment to surface waters, including wetlands. Avoid routine general blading of ditch lines on insloped roads to maintain vegetative cover for sediment filtering. Where necessary blade only the ditch segments where blockage problems occur.
Add FW-GDL-AR-03 as follows: *In Conservation and Restoration watersheds reconstruct road and drainage features that do not meet design criteria or operation and maintenance standards, or are proven less effective than designed for controlling sediment delivery, or retard attainment of desired stream function, or increase sedimentation. Also complete watershed analysis should be conducted prior to constructing roads or landings in RCAs. Transportation planning in Conservation and Restoration watersheds should strive to attain road density favorable to water quality, and healthy populations of native bull trout, westslope cutthroat trout, and interior redband cutthroat trout. Roads and trails not needed for long term management and/or public recreation access, and/or which cannot be maintained within agency budgets or capabilities that are causing resource damages shall be considered for decommissioning.*
Add FW-GDL-AR-04 as follows: *Campground facilities and concentrated public recreational use areas should be located away from ecologically sensitive areas and located in areas that are more resilient and can more easily recover from impacts and/or accommodate public use with less impacts.*
Add FW-GDL-AR-05 as follows: *Where adjustment measures such as education, use limitations, traffic control devices, increased maintenance, relocation of facilities, and/or specific site closures are not effective in meeting desired conditions for watersheds, riparian areas and aquatic species and avoiding adverse effects on inland native fish and aquatic species of concern, consider eliminating the practice or occupancy.*

Funding is also needed to assure that an effective policing and enforcement program is available to assure that off-road vehicles and snowmobiles will not violate motorized vehicle access limitations that protect other resources and the environment. Enforcement of off-road restrictions must be funded and prioritized, and adequate resources should be devoted to user education and signage for promoting compliance access and travel requirements to achieve desired conditions needed to assure that motorized access does not occur in restricted areas. We suggest including a guideline to address such concerns.

Add FW-GDL-AR-06 as follows: *An effective policing and enforcement program shall be implemented to assure that motorized access occurs in accordance with MVUMs.*

Vegetation

10. In regard to proposed direction for Vegetation we acknowledge the Forest Service's expertise and knowledge in regard to vegetation management, and appreciate the detail and specificity included in the proposed Desired Conditions for Vegetation. In general we have fewer concerns regarding proposed Objectives, Standards and Guidelines for Vegetation than evidenced in our prior comments on Objectives, Standards and Guidelines for Watershed and Roads revision topics.

Old Growth

11. We support proposed management direction to protect old growth (e.g., FW-OBJ-VEG-02, FW-STD-VEG-01, FW-STD-VEG-02, FW-GDL-VEG-01), since much old growth habitat has already been lost. Old growth stands are ecologically diverse and provide good breeding and feeding habitat for many bird and animal species dependent on old growth (e.g., barred owl, great gray owl, pileated woodpecker). It is important to prevent continued loss of old growth habitat and promote long-term sustainability of old growth stands, and restore where possible the geographic extent and connectivity of old growth. We note that lands outside the Forest boundary often have not been managed for the late-seral or old growth component, so National Forest lands may need to contribute more to the late-seral component to compensate for loss of this component on other land ownerships.

    It may also be relevant to note that we don't oppose treatments to reduce susceptibility of old growth to insect and disease agents and fire risks. Thinning of understory or under burning in old growth to reduce fuel loads and ladder fuels in old growth may lessen the threat of stand removal by a wildfire and reduce competition with other vegetation to promote larger diameter trees, and may promote long-term protection and sustainability of old growth stands. We generally favor retention of the healthy larger and older seral species trees, particularly trees of desirable tree species whose overall composition may be in decline (e.g., aspen, whitebark pine, white pine, ponderosa pine). We also note that harvest of many live mature trees could potentially increase fire risk, as well as reduce wildlife habitat. If the forest canopy is opened too much by removal of large fire resistant trees it may promote more vigorous growth of underbrush and small diameter trees that would increase fuels and fire risk in subsequent years, contrary to the fire risk reduction purpose and need. We also support proposed direction for retention of adequate snags for cavity nesting birds, since such habitat is often in decline (e.g., FW-GDL-VEG-04, FW-GDL-VEG-05).

Noxious Weeds

12. We support Vegetation Objective, FW-OBJ-VEG-02, to treat noxious weeds. Noxious weeds are a great threat to biodiversity, and can out-compete native plants and produce a monoculture that has little or no plant species diversity or benefit to wildlife. Weeds tend to gain a foothold where there is disturbance in the ecosystem. EPA supports integrated weed management e.g., effective mix of

cultural, education and prevention, biological, mechanical, chemical management, etc.), and recommends weed control measures at the earliest stage of invasion to reduce impacts to native plant communities. Weed prevention is the most cost-effective way to manage and control weeds by avoiding new infestations and spread of weeds, and thus, avoiding the need for subsequent weed treatments. We also encourage tracking of weed infestations, control actions, and effectiveness of control actions in a Forest-level weed database.

While EPA supports weed control and treatment, we encourage prioritization of management techniques that focus on non-chemical treatments first, with reliance on chemicals (herbicides) being the last resort. Weed control chemicals can be toxic and have the potential to be transported to surface or ground water following application where they can drift into streams and wetlands and adversely affect aquatic life and wetland functions such as food chain support and habitat for wetland species. All efforts should be made to avoid movement or transport of herbicides into surface waters that could adversely affect fisheries or other water uses. Accordingly we encourage the KNF to consider adding Guidelines such as:

Add FW-GDL-VEG-09 as follows: *Integrated weed management techniques shall be favored to treat and reduce noxious weed infestations, and new noxious weed invasions shall be contained after discovery within the discovered site.*
Add FW-GDL-VEG-10 as follows: *Herbicides, pesticides, and other toxicants and chemicals shall be used in a safe manner in accordance with Federal label instructions and appropriate restrictions that avoid public health and safety problems, and allow protection and maintenance of water quality standards and avoid adverse effects to inland native fish and aquatic species of concern from weed control chemicals.*

We also note that weed seeds are transported by wind and water, animal fur, feathers and feces, but primarily by people. **The greatest vector for spread of weeds is through motorized vehicles—cars, trucks, ATVs, motorcycles, and even snowmobiles.** A single vehicle driven several feet through a knapweed site can acquire up to 2,000 seeds, 200 of which may still be attached after 10 miles of driving (Montana Knapweeds: Identification, Biology and Management, MSU Extension Service.) We believe an effective noxious weed control program should include restrictions on motorized uses, particularly off-road uses. Off-road vehicles are designed to, and do, travel off-trail, disturbing soil, creating weed seedbeds, and dispersing seeds widely. Weed seed dispersal from non-motorized travel is of lesser concern because of fewer places to collect/transport seed, and the dispersal rate and distances along trails are less with non-motorized travel. Our recommended additional Access and Recreation Guideline FW-GDL-AR-06 (see above) would help reduce weed spread from unauthorized motorized uses.

Timber

13. We did not see much Timber management direction related to protecting or improving water quality, watersheds, and aquatic conditions as timber harvests are carried out to produce the estimated annual 47.5 MMBF of timber on the KNF (FW-OBJ-TBR-01). Proposed Timber Standard, FW-STD-TBR-

08, states that the interdisciplinary team will review potential environmental and biological impacts of proposed timber harvest projects, and the lone Timber Guideline, FW-GDL-TBR-01, mentions protection or enhancement of biodiversity or wildlife habitat. However there is little other direction in the Timber management Desired Conditions, Objectives, Standards or Guidelines involving water quality, watershed, or aquatic protection.

It may be that the KNF considers the draft LMP direction for Watershed, Soils, Riparian and Aquatic Resources and other resources to be adequate to address resource concerns associated with timber production. Soils Guidelines (FW-GDL-SOIL-01, FW-GDL-SOIL-02, FW-GDL-SOIL-04) include direction to protect soils during timber harvests, and Riparian Standards and Guidelines (FW-STD-RIP-01, FW-STD-RIP-02, FW-GDL-RIP-06) include protection of RCAs. However, it may be appropriate to consider additional aquatics protection. For example, the KNF may want to consider some additional Guidelines to provide additional aquatic resource protection for Timber management as follows (although these could as easily be incorporated into Watershed, Water Quality and Aquatics Guidelines):

Add FW-GDL-TBR-02 as follows: *Vegetation and/or fuel management prescriptions in RCAs will be for the purpose of restoring, enhancing, or protecting the physical and biological characteristics of the RCA including Riparian Management Objectives. Vegetation and/or fuel treatments, for the purpose of protecting urban interface, private property and other investment, and public safety in RCA's shall be designed so as not to prevent the attainment of desired stream function. Fuelwood cutting and salvage in RCAs is allowed where it will not prevent or retard attainment of watershed, riparian and aquatic habitat and aquatic species desired conditions.*
Add FW-GDL-TBR-03 as follows: *Minimize erosion and sediment production and adverse impacts to soils during timber harvest by consideration of measures such as use of existing skid trails wherever possible; restrictions on skidding with tracked machinery in sensitive areas; using slash mats to protect soils; constructing water bars; creating brush sediment traps; adding slash to skid trail surfaces after recontouring and ripping; seeding/planting of forbs, grasses or shrubs to reduce soil erosion and hasten recovery; as well as recontouring, slashing and seeding of temporary roads and log landing areas following use.*

Fire and Air Quality

14. The EPA generally supports proposed management direction for fire, particularly prioritizing public and firefighter safety, (FW-DC-FIRE-01), and increasing the role of wildland fire (both prescribed fire and where appropriate, wildfire) in helping to trend vegetation towards the desired conditions while serving other important ecosystem functions (FW-DC-FIRE-03). The EPA supports the national goal reduce the risk of uncontrolled wildfire in wildland-urban interface areas, and recognizes that judicious and well planned use of prescribed fire can reduce hazardous fuels and restore fire to forest ecosystems that evolved with fire.

We are pleased that a Desired Condition for Air Quality (FW-DC-AQ-01) is included specifying that prescribed burning is planned to meet air quality standards, including areas classified as Class 1 airsheds (e.g.,

Cabinet Mountains Wilderness) and nonattainment areas (e.g., Libby, Montana); and that a Guideline is included stating that the Forest should cooperate with the States in meeting the requirements of State Implementation Plans (SIPs) and the Smoke Management Plans (FW-GDL-AQ-01) (LMP page 39). It may be appropriate for the KNF to consider adding a Guideline referencing the requirements of the Interagency Prescribed Fire Planning and Implementation Procedures Guide (July 2008, http://www.nwcg.gov/pms/RxFire/rxfireguide.pdf) for inclusion in burn plans along with notifying the public of pending prescribed burns. For example,

Add FW-GDL-AQ-02 as follows: *The Forest should include the requirements of the Interagency Prescribed Fire Planning and Implementation Procedures Guide (July 2008, http://www.nwcg.gov/pms/RxFire/rxfireguide.pdf in site-specific prescribed burn plans and should notify the public of pending prescribed burns.*

We also note that fire management activities can have adverse effects on water quality and riparian areas. We recommend that the KNF consider adding the following guidelines to help assure adequate consideration of such concerns during fire management activities.

Add FW-GDL-FIRE-01 as follows: *Bladed firelines, for prescribed fire and wildfire, need to be stabilized with water bars and/or other appropriate techniques to control excessive sedimentation or erosion, and firelines should be rehabilitated to reduce erosion and sediment transport risks following the fire.*
Add FW-GDL-FIRE-02 as follows: *Minimum impact fire suppression tactics should be used within RCAs. Strategies recognize the role of fire in ecosystem function and identify those instances where fire suppression actions could perpetuate or damage long-term ecosystem function or native fish and sensitive aquatic species.*
Add FW-GDL-FIRE-03 as follows: *Avoid delivery of chemical retardant, foam, or other fire chemicals and petroleum products to surface waters, following appropriate protocols and BMPs.*
Add FW-GDL-FIRE-04 as follows: *Locate incident bases, camps, helibases, staging areas, helispots and other centers for incident activities outside of RCAs. If the only suitable location for such activities is within the RCAs, an exemption may be granted following a review and recommendation by a resource advisor. The advisor would prescribe the location, use conditions, and rehabilitation requirements, with avoidance of adverse effects to water quality and aquatic species as a primary goal. Use an interdisciplinary team, including a fishery biologist, to predetermine incident base and helibase locations during pre-suppression planning.*

We also ask if there may be a need to consider measures to protect range improvements that protect aquatic resources (e.g., water developments, spring exclosures, fencing, corrals, etc.) during prescribed fire application?

Wildlife

15. In regard to proposed management direction for Wildlife we acknowledge the expertise of wildlife biologists in the Forest Service, as well as with the Montana Dept. of Fish, Wildlife & Parks and the

U.S. Fish & Wildlife Service in regard to evaluating Forest wildlife management issues and concerns. Our greatest concern regarding effects of Forest management on wildlife is associated with potential effects of the Forest road system and motorized access from newer motorized vehicles such as trail bikes, ATVs and snowmobiles on wildlife, wildlife habitat and security. The newer types of motorized vehicles can access areas much further into the Forest than they could historically, forcing wildlife onto smaller and smaller patches of habitat, fragmenting habitat and migration corridors, and affecting wildlife behavior, life history functions and wildlife security. Demand for recreation opportunities on the Forest may be exceeding the capability of the land and resources to provide recreation in a manner that is consistent with wildlife and ecosystem protection.

We believe it is important for the KNF to include appropriate management direction to protect wildlife and allow the recovery of threatened and endangered terrestrial wildlife species given the potential adverse effects of the Forest road system and motorized access on wildlife. We appreciate the inclusion of much proposed management direction in the draft LMP that appears to address road system and motorized uses on wildlife (e.g., FW-DC-WL-02, FW-DC-WL-04, FWDC-WL-05, FW-DC-WL-17, FW-STD-WL-02, FW-STD-WL-03, FW-STD-WL-05, FW-GDL-WL-12, FW-GDL-WL-13, FW-GDL-WL-14, FW-GDL-WL-15).

Other Revision Topics

Minerals

16. We appreciate that the proposed Desired Condition for Minerals identifies the need for the land to sustain ecosystems and protect other resources while mineral and energy resources are provided (FW-DC-MIN-01). However, we are often concerned about potential environmental effects associated with exploration, development, operation, closure and reclamation of hard rock mines, particularly with regard to risks of mobilization and transport of heavy metals and other pollutants to surface and ground waters. As you know there are active metal mines on the KNF and large ore deposits (e.g., copper/silver ores) and proposals for additional mine development. We consider it important, therefore, for the KNF to include appropriate management direction to protect water quality and aquatic resources during metal mine exploration, development, operation, and mine closure, reclamation, and post-closure.

    We note that FW-DC-MIN-01 only mentions reclamation of abandoned mine sites where human health risks exist. While we agree that mine reclamation to address human health risks should be prioritized, reclamation of abandoned mine sites to remediate environmental contamination and degradation to fisheries and wildlife should also be considered. For example we recommend that the KNF consider revising the Minerals Desired Condition as follows:

    Revise FW-DC-MIN-01 as follows: *The Forest continues to contribute to the economic strength and demands of the nation by supplying mineral and energy resources while assuring the land's capability to sustain ecosystems. Mineral materials are made available based upon public interest, material availability, in-service needs, and protection of other resource values, <u>including consistency with desired conditions for other resources</u>. Geologic features are conserved for their intrinsic values and characteristics. Reclamation*

of abandoned mine sites to address human health and environmental degradation risks should occur, with reclamation priority given to mine sites with human health risks.

We are concerned that there are no proposed Minerals Guidelines, even though it is known that metal mining has potential to cause environmental degradation. We consider it important to have Guidelines for minerals development to help assure that minerals development is protective of other resources, particularly water quality and aquatic resources. We are including some suggestions for Minerals guidelines below for consideration by the KNF.

Add FW-GDL-MIN-01 as follows: *Minimize adverse effects of mineral operations on water quality and inland native fish and aquatic species of concern. If a Notice of Intent indicates that a mineral operation would be located in an RCA, consider the effects of the activity on water quality and inland native fish and aquatic species of concern in the determination of significant surface disturbance pursuant to 36 CFR 228.4. For operations in a RCA ensure operators take all practicable measures to maintain, protect, and rehabilitate fish and wildlife habitat which may be affected by the operations. Reclamation bonds are adequate to ensure long-term chemical and physical stability; successful reclamation of the area of operation; and necessary treatment and remediation of mine wastes over the long-term.*

Add FW-GDL-MIN-02 as follows: *Locate and design mine facilities and mine water management to minimize surface disturbances, control water runoff, minimize erosion and sedimentation, protect hydrologic function and integrity, and prevent the release of acid or toxic or hazardous materials to surface or ground waters.*

Add FW-GDL-MIN-03 as follows: *Locate structures, support facilities, and roads outside RCAs. Where no alternative to locating mine facilities in RCAs exists, locate and construct the facilities in ways that avoid impacts to RCAs and streams and adverse effects on inland native fish and aquatic species of concern. Where no alternative to road construction exists, keep roads to the minimum necessary for the approved mineral activity. Close, obliterate, and revegetate roads no longer required for mineral or land management activities.*

Add FW-GDL-MIN-04 as follows: *Prohibit solid and sanitary waste facilities in RCAs. If no alternative to locating mine waste (waste rock, spent ore, tailings) facilities in RCAs exists, and releases can be prevented and stability can be ensured, then:*

a. Analyze the waste material using the best conventional sampling methods and analytic techniques to determine its chemical and physical stability characteristics.

b. Locate and design the waste facilities using the best conventional techniques to ensure mass stability and prevent the release of acid or toxic materials. If the best conventional technology is not sufficient to prevent such releases and ensure stability over the long term, prohibit such facilities in RCAs.

c. Monitor waste and waste facilities to confirm predictions of chemical and physical stability, and make adjustments to operations as needed to avoid adverse effects on inland native fish and aquatic species of concern.

d. Reclaim and monitor waste facilities to assure chemical and physical stability and revegetation to avoid adverse effects on inland native fish and aquatic species of concern.

e. Require reclamation bonds adequate to ensure long-term chemical and physical stability, water treatment, and successful revegetation of mine waste facilities.

Add FW-GDL-MIN-05 as follows: *Permit sand and gravel mining and extraction within RCAs only if no alternatives exist, and if the action(s) would not retard or prevent attainment of watershed, riparian and aquatic habitat and aquatic species desired conditions, and would avoid adverse effects on inland native fish and aquatic species of concern.*
Add FW-GDL-MIN-06 as follows: *Develop inspection, monitoring, and reporting requirements for mineral activities. Evaluate and apply the results of inspection and monitoring to modify mineral plans, leases, or permits as needed to eliminate impacts that prevent attainment of watershed, riparian and aquatic habitat and aquatic species desired conditions, and avoid adverse effects on inland native fish and sensitive aquatic species.*
Add FW-GDL-MIN-07 as follows: *Active and abandoned mines on the Forest that pose risks of environmental degradation, particularly acid mine drainage or mobilization and transport of toxic or hazardous materials shall be identified and prioritized for restoration.* {We note that the Montana DEQ has mine site map resources that may assist with locating abandoned mine sites (contact John Koerth at 406-841-5026}.

Grazing

17. It is well known that grazing can adversely impact riparian vegetation and functions, wetlands, streambank and channel stability, increase stream sedimentation, as well as increase fecal coliform, nutrient and temperature levels, all of which may adversely affect water quality, fisheries and other aquatic life. Grazing in riparian areas is often of particular concern. While we understand that grazing is not a major land use on the KNF, we still believe it would be appropriate to include in the Grazing Desired Condition a statement regarding protection of riparian areas, wetlands, streambank and channel stability, water quality, and aquatic habitat. We recommend that the KNF consider revising the Grazing Desired Condition as follows:
Revise FW-DC-GRZ-01 as follows: *Grazing occurs at sustainable levels in a manner that protects riparian areas, wetlands, streambank and channel stability, water quality, and aquatic habitat, and other vulnerable resources.*

No Grazing Guidelines are proposed even though it is known that grazing can have adverse effects on stream and riparian functions and water quality. Erosion, gully formation, incision of natural and created channels, soil compaction, streambank trampling, sedimentation of nearby waters, and overuse of forage often occurs in areas where livestock congregate (e.g., along fence lines, trails, roads, watering areas, and bedding areas). It may be helpful to include some Guidelines to promote grazing practices protective of stream and riparian functions and water quality (e.g., manage allotments for grazing frequency, duration, stocking rates, animal distribution, season and timing of forage use). These could either be added as Grazing Guidelines or Watershed/Aquatics Guidelines. For example,

Add FW-GRZ-GDL-01 as follows: *Grazing practices shall be protective of riparian functioning and stream bank and channel stability (e.g., limit accessibility of livestock to riparian areas and streams; limit livestock trailing, bedding, watering, salting, streambank trampling in riparian areas; change grazing management where grazing impedes progress toward attainment of watersheds and aquatic*

species Desired Conditions-manage number and location of pastures, length of grazing seasons, stocking levels, timing of grazing, forage utilization, fencing, etc.). General practices to reduce grazing impacts on streams and riparian areas include:
-Locate new livestock handling or management facilities outside of RCAs.
- Develop and implement grazing management plans and practices in areas of known or suspected fish spawning to avoid or reduce trampling of redds that may result in adverse impacts to the species.
-Actively restore (for example, weed control or reseeding of native vegetation) areas that are severely degraded from over grazing.
-Identify specific criteria in allotment management plans for special areas,such as wet meadows, where limiting grazing at certain times of the years or under certain conditions is necessary to protect resources.
-Prohibit the use of off-road vehicles for grazing management in areas where they conflict with sensitive wildlife or non-motorized recreation areas and users.

Lands and Special Uses

18. We did not see proposed guidelines to address potential hydropower developments or other water developments, although we realize that this is likely due to limited present hydropower or water development on the Forest, there is always the possibility that there may be future hydropower or water development. The KNF may want to consider the following as potential Guidelines in the event that hydropower or water development appears likely:

Add FW-GDL-LND-03 as follows: *Require instream flows and habitat conditions for hydroelectric and other surface water development proposals that maintain or restore riparian resources, favorable channel conditions, fish passage, & reproduction and growth. Coordinate this process with the appropriate state agencies. During re-licensing of hydroelectric projects, provide written and timely license conditions to the Federal Energy Regulatory Commission (FERC), that require fish passage and flows and habitat conditions that maintain/restore riparian resources and channel integrity. Coordinate re-licensing projects with the appropriate state agencies.*
Add FW-GDL-LND-04 as follows: *Locate new hydroelectric ancillary facilities outside RCAs. For existing ancillary facilities inside the RCA that are essential to proper management, provide recommendations to FERC to assure that the facilities would not prevent attainment of the Riparian Management Objectives and that adverse effects on inland native fish and aquatic species of concern are avoided. Where these desired conditions cannot be met, provide recommendations to FERC that such ancillary facilities should be relocated. Locate, operate, and maintain hydroelectric facilities that must be located in Riparian Habitat Conservation Areas to avoid effects that would retard or prevent attainment of the Riparian Management Objectives and avoid adverse effects on inland native fish and aquatic species of concern.*

Management Area Direction

Wilderness (MA1a, MA1b, MA1c)

19. The KNF manages one congressionally designated wilderness area, the 93,700 acres Cabinet Mountains Wilderness, which is part of the National Wilderness Preservation System (LMP page 45), and manages one wilderness study area (WSA) – the Ten Lakes WSA. Ten Lakes (34,100 acres) (LMP page 49). The draft LMP recommends addition of 112,800 acres to the National Wilderness Preservation System (i.e., 29,900 acres in the Cabinet Mountains, 23,500 acres in the Roderick Area, 35,900 acres in the Scotchman Peaks, and 23,500 acres in the Whitefish Divide) (LMP page 47).

    We support recommendations for additions to the National Wilderness Preservation System since wilderness areas and roadless areas often provide population strongholds and key refugia for listed or proposed species and narrow endemic populations due to their more natural undisturbed character. EPA supports protection of the pristine character and integrity of remaining minimally disturbed roadless and wilderness study areas to prevent further fragmentation and degradation of wildlife habitat, including habitat for threatened species such as the bull trout, grizzly bear and lynx as well as other species such as mountain goat and wolverine, and to maintain or restore solitude and primitive recreation characteristics in such areas. Many areas are threatened by increasing levels of motorized recreation and resource development. We encourage KNF consideration of additional wilderness recommendations (e.g., Gold Hill West IRA).

    Wild & Scenic Rivers (MA2)

20. The draft LMP indicates that there are 249 river miles eligible for Wild & Scenic River designation and Table 10 displays recommended river segments and classifications (LMP pages 52-53). We support these recommendations.

    Botanical, Geological, Historical, Recreational, Scenic, or Zoological Areas (MA3)

21. Table 13 indicates that that there are 16,835 acres of existing Botanical, Geological, Historical, Recreational, Scenic, or Zoological Areas with unique, unusual, or important characteristics. An amount of 32,459 additional acres are recommended (LMP pages 56-58). We support these recommendations.

    Research Natural Areas (MA4a)

22. The KNF has eight established RNAs and three recommended RNAs (Table 14, LMP page 60) to provide for the study and protection of a full range of habitat types identified in the "Research Natural Areas of the Northern Region: Status and Needs Assessment" (1996). We support the KNF recommendations for this network of ecological reserves to protect late-seral or climax conditions and help maintain biodiversity, and for conduct of ecological research.

    MA5a, 5b, and 5c – Backcountry

23. We KNF has Backcountry designations for areas with less roads to provide more remote and undeveloped recreation experiences (i.e., largely through the management of the various trail systems, motorized and non-motorized). We support the KNF Backcountry designations.

MA6 – General Forest

24. The KNF designation for General Forest is for areas with roads, trails, structures, and signs of forest management activities, and lands generally suitable for timber production, with timber harvest contributing to regulated timber harvest estimates. In general we support KNF General Forest designations, although we believe timber harvest and salvage operations in RCAs should be limited to situations where those operations are needed to attain or maintain riparian and aquatic habitat desired conditions or meet safety needs. We support the exclusion of riparian conservation areas (RCAs) from the suitable timber base to reduce ground disturbance in riparian areas and protect stream channels and water quality. Also there are potential trade-offs with timber production and social, economic and environmental/ecological values. It is important that ecosystem integrity be adequately maintained to allow sustainable levels of timber production along with other resource uses and maintenance of other desired values over the long-term.

Primary Recreation Areas (MA7)

25. The KNF has Primary Recreation Area designations for two areas: the Turner Mt. Ski area and the area around Lake Koocanusa (Table 15). We have no objections to such KNF designations.

Geographic Area Direction

26. We are particularly interested in aquatic health of subbasins, watersheds and subwatersheds of the Geographic Areas (GA). We believe it would be helpful to list the streams and stream miles in each GA that are listed as water quality impaired by the State of Montana on their Clean Water Act Section 303(d) list (http://cwaic.mt.gov/), and the pollutant parameters which are causing water quality standards exceedances. Such additional information may help the reader understand the context for the Desired Conditions for each GA. In addition, if total daily maximum loads (TMDLs) exist for any of the streams within the GA, it would be helpful if the LMP included a description of the goals of the TMDL and how it is being implemented. I t would also be helpful to list the Conservation and Restoration Watersheds in each GA.

Also, since road densities are so important to watershed condition, wildlife habitat and overall ecosystem condition it would be helpful and pertinent to describe road density for each GA, and summarize effects of road density on ecosystem condition, and goals for road density reductions.

We are pleased that GADC-WTR-LIB-02 states that public water supplies in the Flower Creek Municipal watershed will receive special consideration during project implementation and are protected (LMP page 88). We understand that groundwater rather than surface water now provides the source of public water supply for the Towns of Fortine and Noxon. We recommend that the LMP

identify source water protection areas in each GA and specify that source water protection areas and public water supplies would continue to be protected in each GA. State agencies have been delegated responsibility to conduct source water assessments and provide a database of information about the watersheds and aquifers that supply public water systems. We recommend that the KNF address or reference the two page guidance document, *"Incorporating Source Water Protection into Federal Land Management Planning Process,"* which summarizes guidance for addressing source water protection areas (enclosed). The KNF should contact the Montana DEQ, which has developed and maintains a database of source water protection areas to identify areas within or downstream of the project area, (see http://deq.mt.gov/wqinfo/swp/default.mcpx , and http://nris.mt.gov/wis/swap/swapquery.asp). Typical databases may contain GIS and Access information for the watersheds and aquifer recharge areas, the most sensitive zones within those areas, and the numbers and types of potential contaminant sources identified for each system.

KNF Monitoring Program

27. We are pleased that the draft LMP includes information on the KNF monitoring and adapative management program, since we believe monitoring and adaptive management is an integral part of land management. It is important that the direct, indirect and cumulative environmental effects from land management be determined through monitoring for comparison with Desired Conditions, with results fed back to land managers in an adaptive management framework. It is only through monitoring of actual effects that occur that the KNF will be able to determine whether: 1) Desired Conditions are being met; 2) assumptions and indicators used in developing and implementing the plan are valid; 3) estimates or predictions made in the analysis, including cumulative effects, are accurate; and 4) if mitigation is effective or should be increased or decreased or otherwise adjusted to be meet desired conditions.

We are often concerned that monitoring is constrained by limited funding, and that operating budgets for monitoring and evaluation programs could be reduced below those needed for adequate monitoring and evaluation. We recommend that the LMP and monitoring guide should discuss how future budget decisions may affect monitoring and evaluation. We support linking the approval of projects tiered to the LMP to availability of funding for conducting needed monitoring and evaluation. We encourage the KNF to make a strong, explicit commitment to funding monitoring activities, especially watershed/water quality monitoring, such as that in the Forest Service Pacific Northwest Region's Forest Monitoring and Evaluation Guide in which the Regional Forester stated,

> **"All programs and projects should contain appropriate levels of monitoring funds in their costs - or they should not be undertaken." (USDA FS 1993).**

We particularly believe that water quality/aquatics monitoring is a necessary and crucial element in identifying and understanding environmental consequences, and determining effectiveness in BMPs in protecting water quality. The achievement of water quality standards for non-point source activities occurs through the implementation of BMPs. Although BMPs are designed to protect water quality, they need to be monitored to verify their effectiveness. If found ineffective, BMPs need to

be revised, and impacts mitigated. We encourage adequate monitoring budgets for conduct of aquatic monitoring to document BMP effectiveness and long-term water quality improvements associated with road BMP work and road decommissioning.

We are pleased that the Table 32 summary of the KNF monitoring program addresses BMP effectiveness monitoring, and will measure acres (or miles) of restoration activities accomplished in listed 303(d) watersheds, and include monitoring of instream and biotic attributes and stream channel parameters (LMP page 98). We generally recommend that aquatic monitoring be included in projects, using aquatic monitoring parameters such as channel cross-sections, bank stability, width/depth ratios, riffle stability index, pools, large woody debris, fine sediment, pebble counts, macroinvertebrates, etc,. Biological monitoring can be particularly helpful, since monitoring of the aquatic biological community integrates the effects of pollutant stressors over time and, thus, provides a more holistic measure of impacts than grab samples.

We are also pleased that monitoring of soil disturbance is proposed to validate that excess detrimental soil disturbance does not occur (i.e., initial inspections will be conducted during and shortly after harvesting for early assessment of the level of disturbance created, two years after required soil remediation practices have been implemented, and 5 years after harvesting is complete, DEIS pages 200-201, LMP page 98). Is there a need to monitor hydrophobic soils following prescribed burns as well?

Climate Change

28. We appreciate the DEIS evaluation and discussion of climate change among the disturbance and stress agents influencing Forest management (i.e., vegetative conditions, fire regime, hydrologic conditions, fish and wildlife, etc.). We are pleased that the KNF in partnership with the Idaho Panhandle National Forests, completed a USDA Forest Service Kootenai and Idaho Panhandle National Forests Planning Zone (KIPZ) Climate Change Report (2010), parts of which are incorporated in this EIS (page 13, 52, 72).

    Research indicates that climates are changing, and that climate change will accelerate, and that human greenhouse gas (GHG) emissions, primarily carbon dioxide emissions (CO2), are the main source of accelerated climate change (United Nations Intergovernmental Panel on Climate Change (IPCC), http://www.ipcc.ch/). NEPA documents can promote improved public understanding of climate change effects, including the role of climate change in contributing to forest mortality, increased fuel loading, and increased wildland fire activity from increases in temperatures and pine beetle activity/outbreaks and less precipitation (http://www.fs.fed.us/ccrc/topics/bark-beetles.shtml).

    It is likely that a trend of increasing fire activity, earlier fire seasons, higher rates of fire spread and higher fire intensity paralleled with decreasing snow pack in winters, warmer winter temperatures and lesser late summer water flows and other climate change effects will place increasing stress on forest vegetation and fish and wildlife resources and be an important factor influencing future forest

management. We appreciate the KNF's efforts to promote improved public understanding of such matters.

We also acknowledge the recent Forest Service guidebook, "Responding to Climate Change on National Forests: A Guidebook for Developing Adaptation Options," that provides a state-of-science summary of principles of adaptation, methods for vulnerability assessments, and tools and processes to facilitate the development of adaptation strategies and tactics (http://www.fs.fed.us/pnw/news/2012/01/guidebook.shtml).

Incorporating Source Water Protection into Federal Land Management Planning Process

Definitions:

Source Water is untreated water from streams, rivers, lakes, springs, and aquifers that is used as a supply of drinking water. Source Water Protection Areas are areas delineated around sources of drinking water and mapped by the States for each Federally-regulated public water system.

A Federally-regulated public water system provides water for human consumption through pipes or other constructed conveyances to at least 15 service connections or serves an average or at least 25 people for at least 60 days a year.

Steps to Take to Incorporate Source Water Protection into Your Plans and Projects:

1. Identify Source Water Protection Areas within your land management area

Look at the available data. Montana Dept. of Environmental Quality (MDEQ) Source Water Protection Staff identify the sources of drinking water including surface water and groundwater for Federally-regulated public water systems, and delineate the Source Water Protection Areas around each of these drinking water sources, and inventory significant potential contaminant sources within the protection areas.

Source Water Protection Areas present on your land may be associated with public water systems that your agency owns/operates, or they may be for public water systems owned/operated by other entities. Source Water Protection Areas that overlap with your land management area may be associated with public water systems wells or surface water intakes that are physically located beyond the borders of your land area. All Source Water Protection Areas must be protected, regardless of who owns/operates the water system, or the physical location of the water system well or intake.

Maps identifying Source Water Protection Areas for public water systems that are located on Federal lands and that have a completed Source Water Delineation and Assessment Report are available from the MDEQ (http://deq.mt.gov/wqinfo/swp/default.mcpx). Source Water Assessments are available on the MDEQ website, http://nris.mt.gov/wis/swap/swapquery.asp. Ask Montana Source Water Protection Program staff to determine whether you have all current information available at the time of your planning process. The list of active public water systems is subject to change as systems come on-line or go off-line, so it is best to check for up-to-date information. Montana Contacts include Joe Meek at 406-444-4806 and/or Carolyn DeMartino at 406-444-0820.

Ask the Montana contacts for information about State-regulated drinking water systems. These systems are smaller than those that fall under Federal drinking water regulations, but human

health concerns are very real and their source of drinking water also should be considered when planning land use activities.

2. If Source Water Protection Areas are present in your land areas:

Review the source water assessment completed by the State.
Inventory potential contaminant sources within the Source Water Protection Area.
Identify land management activities that might impact drinking water.
Contact the public water system operator.
Include the name and contact information for the water system operator in your plan.
Work with the water system operator to determine when to notify the water system about activities that will be conducted on Federal lands
Determine the types of activities they want to be notified about
Determine an appropriate schedule for notification
Determine other information sharing that should take place

3. Select appropriate BMPs to address decreasing the risk from all identified potential contaminant sources under your control. (A list of BMPs for Drinking Water Protection is available upon request.)

4. Involve the public

Work with communities to ensure that the community is informed of planned projects
Follow all appropriate NEPA protocols for informing the public

5. Monitor

Address Source Water Protection Areas in monitoring plans
If an activity within a Source Water Protection Area could negatively impact drinking water quality, then evaluate alternatives to mitigate the impact.